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United States Patent [19]

Andersen

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- [54] SIGNAL PROCESSOR HAVING MULTIPLE DISTRIBUTED DATA BUFFERS
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- [73] Assignee: The United States of America as represented by the Secretary of the Navy, Washington, D.C.
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[57] ABSTRACT

A hydrophone analog signal data acquisition, A/D conversion and data transmission system includes a

first-stage signal processing subsystem which provides digital representations of the hydrophone analog signal, which in turn are signal processed for transmission in the form of data packets by a second stage signal processing subsystem (40). Subsystem 40 includes a plurality of Data Multiplexer/FIFO units (48), including corresponding selectively acting data unit accumulators, each accumulator having a plurality of inputs coupled to output channels of the first-stage signal processing subsystem for receiving digital representations of hydrophone analog signals. Each data unit accumulator includes a first buffer (48-2) for storing information that includes a digital representation of the analog hydrophone signal, an identification of a hydrophone that generated the acoustic information, and a time that the acoustic information is received from the hydrophone. Each data unit accumulator further includes an input interface that is operable during the first period for receiving a alert signal with a hydrophone analog signal, indicating that the associated source has data available. The input interface compares a current state of the alert signal to a previous state for detecting an occurrence of the assertion of the alert signal. The data unit accumulator also receives and stores a unit of data from a data source having an asserted alert signal, and is responsive to the storage of the unit of data therein, during the first period, to receive and store, during the second period, other information associated with the unit of data stored during the first period.

8 Claims, 19 Drawing Sheets

